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Claims

[c1] A method for implementing a temperature cycling operation for a biochemical sample to be reacted, the method comprising:
applying an infrared (IR) heating source to the sample at a first infrared wavelength selected so as to generate a first desired temperature for a first duration and produce a first desired reaction within the sample; and
following said first desired reaction, applying said infrared (IR) heating source to the sample at a second infrared wavelength selected so as to generate a second desired temperature for a second duration and produce a second desired reaction within the sample.

[c2] The method of claim 1, further comprising:
following said second desired reaction, applying said infrared (IR) heating source to the sample at a third infrared wavelength selected so as to generate a third desired temperature for a third duration and produce a third desired reaction within the sample.

[c3] The method of claim 2, wherein the sample is placed within a reaction chamber during the application of each of said infrared (IR) heating source at each of said first,

said second and said third wavelengths.

[c4] The method of claim 2, further comprising:
passing the sample through a first chamber, said first chamber having said first infrared wavelength generated therein;
passing the sample through a second chamber, said second chamber having said second infrared wavelength generated therein; and
passing the sample through a third chamber, said third chamber having said third infrared wavelength generated therein.

[c5] The method of claim 4, wherein the sample is passed through said first second and third chambers by a conveyor.

[c6] A method for implementing temperature cycling a for a polymerase chain reaction (PCR) process, the method comprising:
subjecting a DNA fragment to infrared radiation so as to facilitate at least one of a denaturing step, an annealing step and an extending step.

[c7] The method of claim 6, further comprising:
inserting the DNA fragment into an infrared (IR) reaction chamber;

activating an infrared (IR) heating source within said reaction chamber at a first infrared wavelength selected so as to generate within said DNA fragment a first temperature for a first duration until said denaturing step is completed;

following said denaturing step, activating said infrared (IR) heating source at a second infrared wavelength selected so as to generate within said DNA fragment a second temperature for a second duration until said annealing step is completed; and

following said annealing step, activating said infrared (IR) heating source at a third infrared wavelength selected so as to generate within said DNA fragment a third temperature for a third duration until said extending step is completed.

[c8] The method of claim 7, wherein an interior of said reaction chamber is initially maintained at an ambient temperature.

[c9] The method of claim 6, further comprising:

inserting the DNA fragment into an infrared (IR) reaction chamber, an interior of said reaction chamber being maintained at an annealing temperature corresponding to said annealing step;

activating an infrared (IR) heating source within said reaction chamber at a first infrared wavelength selected so

as to generate within said DNA fragment a denaturing temperature for a first duration until said denaturing step is completed;
following said denaturing step, deactivating said infrared (IR) heating source so as to generate within said DNA fragment said annealing temperature for a second duration until said annealing step is completed; and
following said annealing step, activating said infrared (IR) heating source at a second infrared wavelength selected so as to generate within said DNA fragment an extending temperature for a third duration until said extending step is completed.

[c10] The method of claim 6, further comprising:
passing the sample through a first chamber containing a first infrared (IR) heating source therein, and activating said first infrared (IR) heating source at a first infrared wavelength so as to generate within said DNA fragment a first temperature for a first duration until said denaturing step is completed;
following said denaturing step, passing the sample through a second chamber containing a second infrared (IR) heating source therein, and activating said second infrared (IR) heating source at a second infrared wavelength so as to generate within said DNA fragment a second temperature for a second duration until said an-

nealing step is completed; and
following said annealing step, passing the sample through a third chamber containing a third infrared (IR) heating source therein, and activating said third infrared (IR) heating source at a third infrared wavelength selected so as to generate within said DNA fragment a third temperature for a third duration until said extending step is completed.

[c11] The method of claim 4, wherein said DNA fragment is passed through said first second and third chambers by a conveyor.

[c12] A temperature cycling apparatus, comprising:
a processing chamber;
an infrared (IR) heating source, said infrared heating source configured to generate energy a first infrared wavelength so as to generate a first desired temperature for a first duration and produce a first desired reaction within a sample placed in said processing chamber; and said infrared (IR) heating source is further configured to generate energy at a second infrared wavelength so as to generate a second desired temperature for a second duration and produce a second desired reaction within the sample.

[c13] The temperature cycling apparatus of claim 12, wherein

said infrared (IR) heating source further is configured to generate energy at a third infrared wavelength so as to generate a third desired temperature for a third duration and produce a third desired reaction within the sample.

[c14] The temperature cycling apparatus of claim 13, wherein:
said first desired temperature corresponds to a denaturing step for a polymerase chain reaction (PCR) process;
said second desired temperature corresponds to an annealing step for said PCR process; and
said third desired temperature corresponds to an extending step for said PCR process.

[c15] The temperature cycling apparatus of claim 14, wherein:
said processing chamber further comprises a first chamber configured for generating said first infrared wavelength, a second chamber configured for generating said second infrared wavelength, and a third chamber configured for generating said third infrared wavelength.

[c16] The temperature cycling apparatus of claim 15, further comprising a conveyor for passing the sample through said first, second and third chambers.